

R&S[®]DVM software video decoder

Application Note

The streaming interface of the R&S[®]DVM50, R&S[®]DVM100 and R&S[®]DVM400 enables you to replay video content on the instrument itself or on an external PC in the network in realtime by using the supplied video decoder software. Due to the flexible streaming concept, you can even replay HDTV video content on a network PC if the processing power and network connection are sufficient.

This Application Note provides a step-by-step description of all video decoding settings you need to make. It also contains valuable information about how to optimize replay for various applications.



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1 Introduction

The streaming interface of the R&S®DVM50, R&S®DVM100 and R&S®DVM400 enables you to replay video content on the instrument itself or on an external PC in the network in realtime by using the supplied video decoder software. Due to the flexible streaming concept, you can even replay HDTV video content on a network PC if the processing power and network connection are sufficient.

This Application Note provides a step-by-step description of all video decoding settings you need to make. It also contains valuable information about how to optimize replay for various applications.

2 What's required?

To replay video content by using an R&S®DVM system, you need the following:

- An R&S®DVM50, R&S®DVM100 or R&S®DVM400 with firmware version 2.61 or later. Firmware updates are available free-of-charge from Rohde & Schwarz.
- To replay HDTV video content, you also need a high-performance PC that is connected with the R&S®DVM system over a network with a speed of at least 100 Mbit/s. The network should have enough spare capacity to support the required video data rate.

3 How it works

The R&S®DVM extracts the packets with the specific video PID from the transport stream ❶ that has been created. Depending on user specifications, the video content is replayed on the R&S®DVM directly by the media player software ❷ or, alternatively, streamed to a user-defined IP address in the external network by the router integrated in the R&S®DVM. The media player software started on the PC replays the forwarded video content ❸.

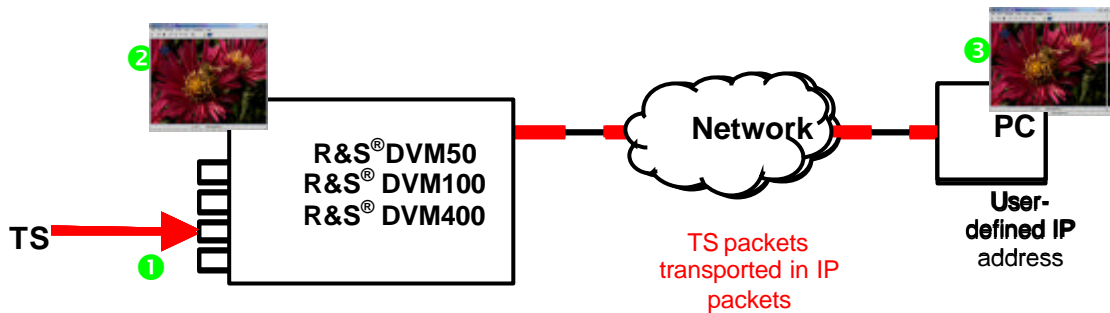


Fig. 1

4 Replaying SDTV on the R&S®DVM controller

You can configure or start the replay of video content on the R&S®DVM controller (R&S®DVM100, R&S®DVM400) or on the R&S®DVM controller PC (R&S®DVM50) via the Streaming view.

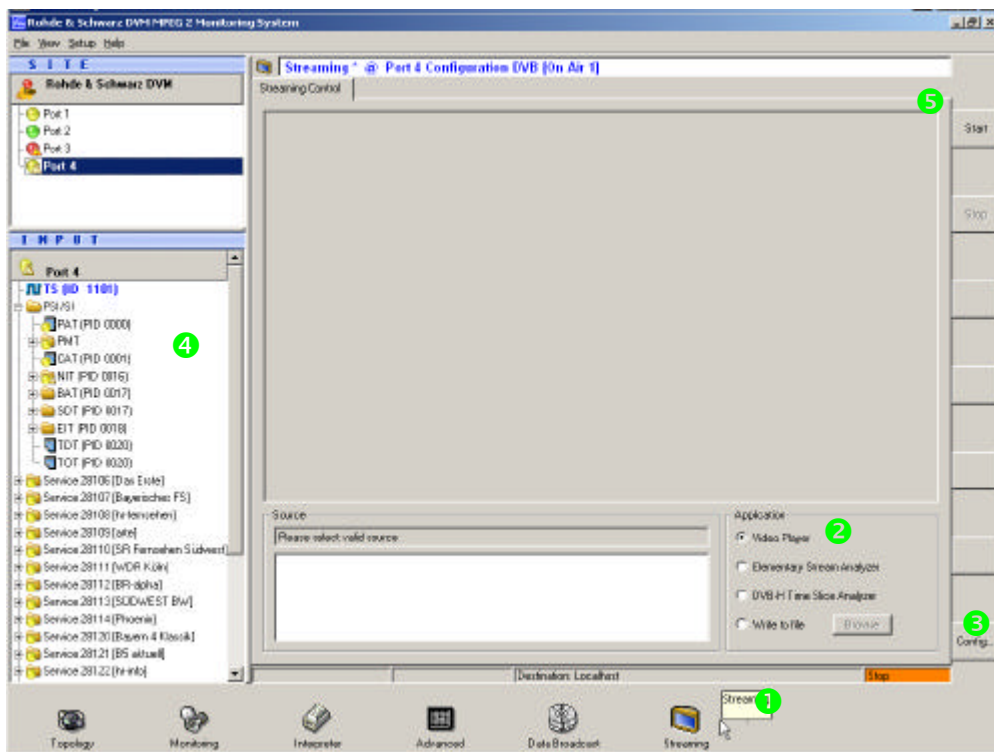


Fig. 2

The procedure is as follows (Fehler! Verweisquelle konnte nicht gefunden werden.):

- Click the *Streaming* (1) button in the icon bar to switch to the *Streaming* view.

- From the *Streaming* view, select the *Video Player* ② application.
- Click the *Config...* ③ button and make sure that *Local PC* is selected as the streaming destination in the *Streaming Configuration* dialog box (**Fehler! Verweisquelle konnte nicht gefunden werden.**).
- If you are using the R&S®DVM50, you can replay not only the video elementary stream but also an audio elementary stream present in the service on the R&S®DVM controller PC by activating *Full Service including PAT/PMT* in the *Streaming Configuration* dialog box (**Fehler! Verweisquelle konnte nicht gefunden werden.**).
- Select the video elementary stream to be replayed from the input tree ④.
- Click *Start* ⑤ in the button bar at the right.

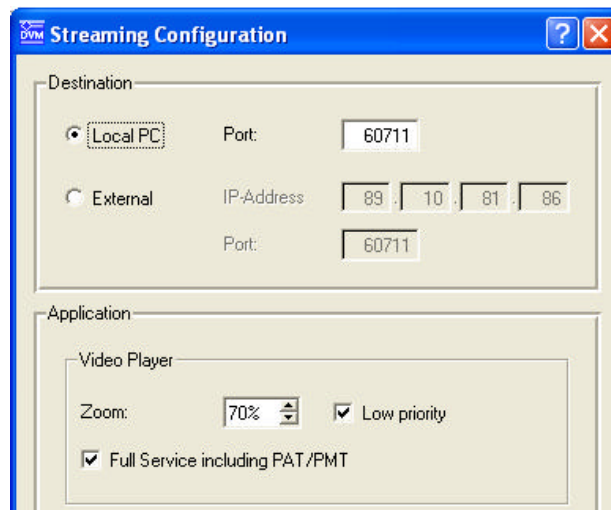


Fig. 3

The media player will then replay the selected video elementary stream in a separate window (**Fehler! Verweisquelle konnte nicht gefunden werden.**). Click the *Stop* button ⑥ to stop replay and to close the media player window.

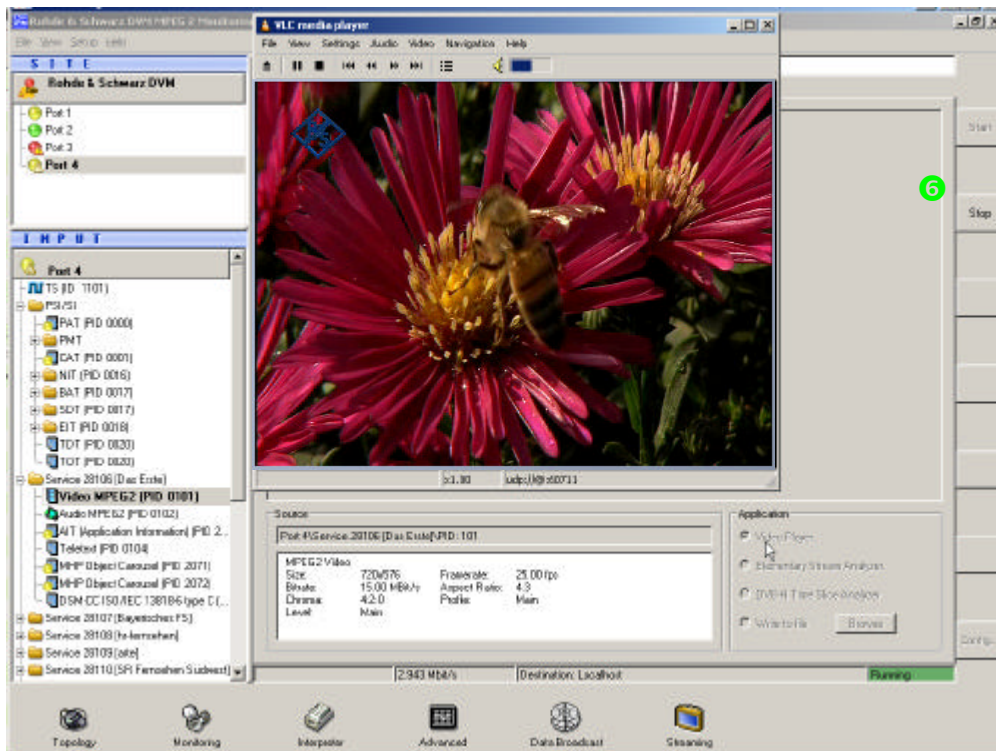


Fig. 4

Note: When in the Streaming view, you can directly start the replay of a video elementary stream by double-clicking it if Video Player is selected as the application.

Note: The video is displayed by means of a software decoder. In some cases, other processes may prevent continuous display of the picture. To improve picture output, increase the decoder priority under Config.

5 Replaying SDTV or HDTV on an external PC

Before you can replay video elementary streams on an external PC, you must install the VLC media player software on the PC and configure the network parameters.

5.1 Obtaining and installing the VLC media player software

You can download the VLC media player software for a number of operating systems at no charge from the Internet at www.videolan.org. Install the VLC software on the PC on which you want to replay the video elementary streams.

5.2 Configuring the network parameters

Before you can stream the video data from the R&S[®]DVM to the media player application on the external PC, you must first make the following set-

tings (necessary only once) (**Fehler! Verweisquelle konnte nicht gefunden werden.**):

- Click the *Streaming* button in the R&S®DVM icon bar ❶ to switch to the *Streaming* view.
- Click *Config...* ❷ in the button bar at the right to call the *Streaming Configuration* dialog box.

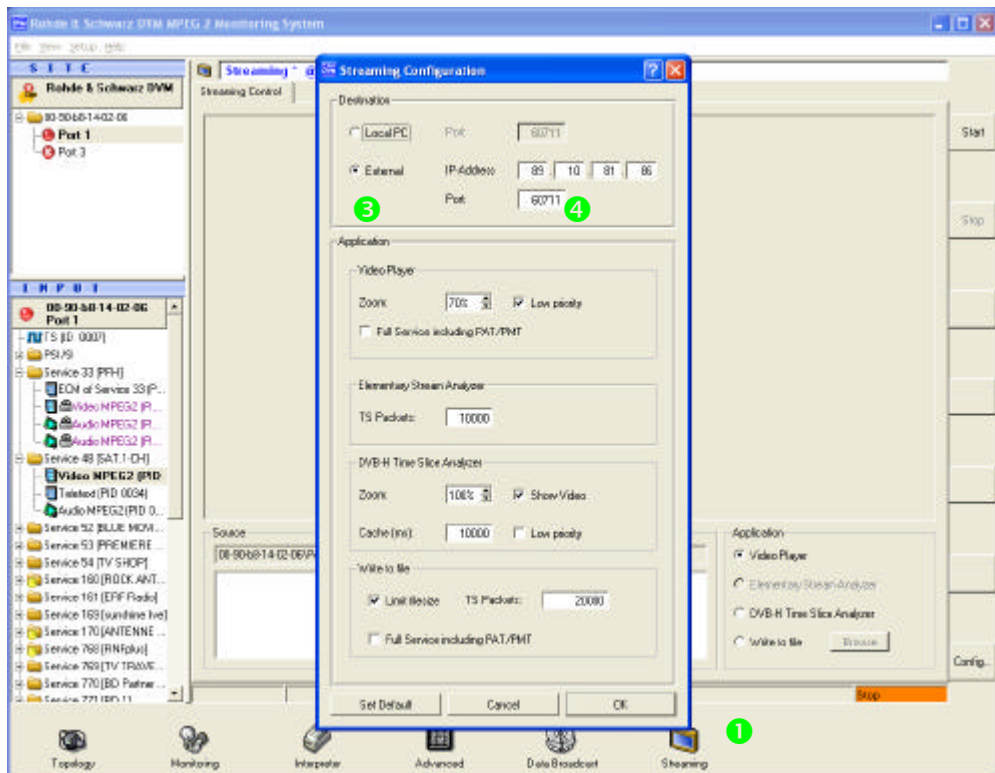


Fig. 5

- From the *Destination* field in the *Streaming Configuration* dialog box, activate the *External* ❸ radio button and enter the IP address of the PC on which you want to replay the video elementary stream. Ordinarily, you do not need to change the default setting for the port ❹. However, make a note of the port number, because you will need it later to configure the VLC media player software. Confirm your entry by clicking the *OK* button.
- Start the VLC media player software on the external PC.
- From the *File / Open Network Stream...* menu in the VLC media player software, call the dialog box for configuring the network parameters (**Fehler! Verweisquelle konnte nicht gefunden werden.**).
- From this dialog box, select the *UDP/RTP* streaming format ❺ and enter the same port that you previously selected from the *Streaming Configuration* dialog box of the R&S®DVM.

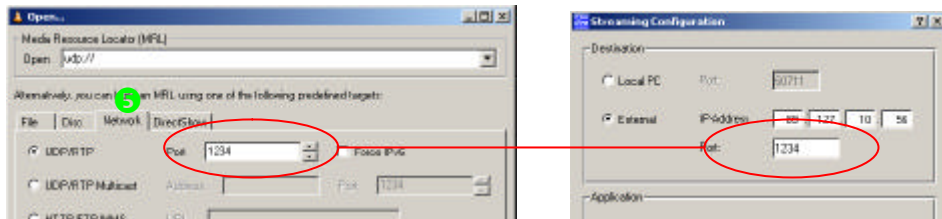


Fig. 6

- Click **OK**. The media player is now ready to receive video data.

5.3 Starting replay

After you configure the network parameters successfully, you can start replay on the external PC in the same manner as previously described for replay on the R&S®DVM controller:

- If you are not already in the *Streaming* view (**Fehler! Verweisquelle konnte nicht gefunden werden.**), click the *Streaming* **1** button in the icon bar to get there.
- From the *Streaming* view, select the *Video Player* **2** application.
- By selecting *Full Service including PAT/PMT* from the *Streaming Configuration* dialog box (**Fehler! Verweisquelle konnte nicht gefunden werden.**), you can replay not only the video elementary stream but also an audio elementary service present in the service on the external PC.
- Select the video elementary stream to be replayed from the input tree **3**.
- Click *Start* **4** in the button bar at the right.

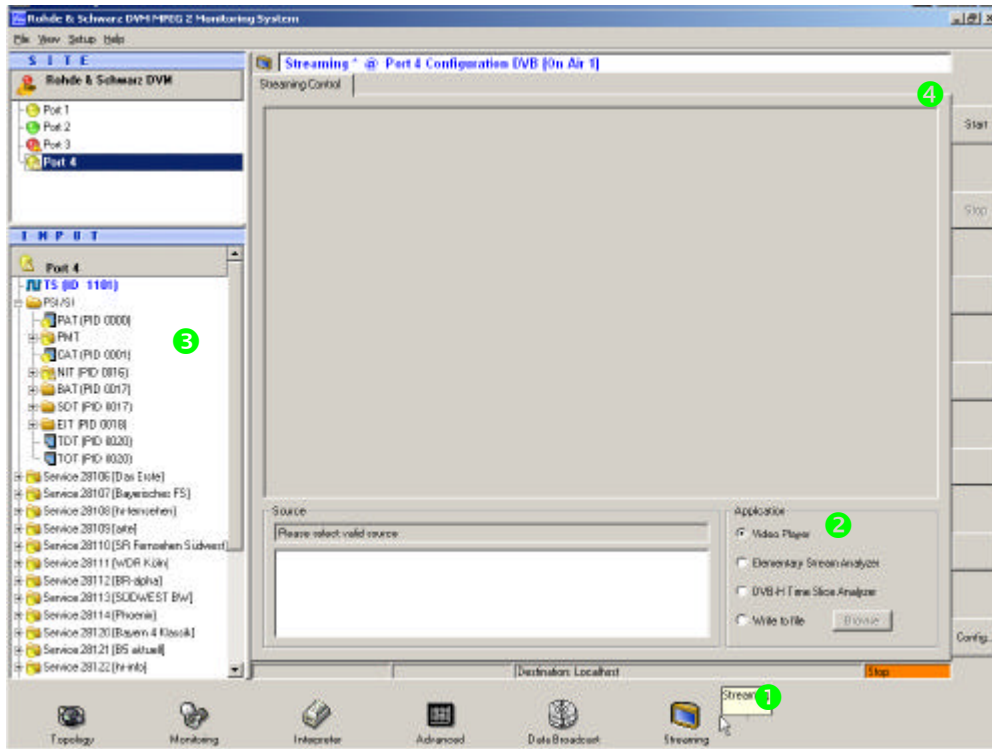


Fig. 7

Note: The quality of video replay on an external PC largely depends on the network connection that is used and the capacity of the PC. For example, data rates of more than 20 Mbit/s are possible on the network when replaying HDTV. Loss-free transmission cannot be ensured even in a 100 Mbit/s network if multiple users are sharing the network.

6 Additional Information

Our Application Notes are regularly revised and updated. Check for any changes at <http://www.rohde-schwarz.com>.

Please send any comments or suggestions about this Application Note to:
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